



US Army Corps
of Engineers®

Engineer Research and
Development Center

Environmental Analysis

Description and Background

The U.S. Army Engineer Research and Development Center, Topographic Engineering Center, Hydrologic and Environmental Analysis Branch (HEAB) conducts GIS-based Historical Photographic Analyses of current, former and closing U.S. Military installations. HEAB also analyzes aerial photography to address environmental concerns related to land use change, such as historical wetland evaluation, shoreline change, watershed/land use mapping and produces a variety of baseline environmental analyses.

The identification and remediation of hazardous sites is a problem faced by many active, closing and former U.S. military installations. These problems are complicated by the fact that many of these sites were created by practices and activities undertaken years or even decades ago. These hazardous sites are often completely obscured today due to the burial of materials, rapid revegetation, or dramatic changes in land use. HEAB uses classified and unclassified historical aerial photography and satellite imagery to locate potential sites of environmental contamination, (e.g. chemical warfare materiel (CWM), unexploded ordnance (UXO), radioactive material or landfill locations). In addition to locating potential contamination sites, the branch conducts GIS-based Historical Photogeologic Analyses for areas where groundwater contamination is a concern. Surface features that can influence the migration of contaminants, e.g. rock fractures, and for use in support of geophysical studies.

GIS-based Historical Photographic Analyses enables one to view the landscape prior to land cover or land use change.

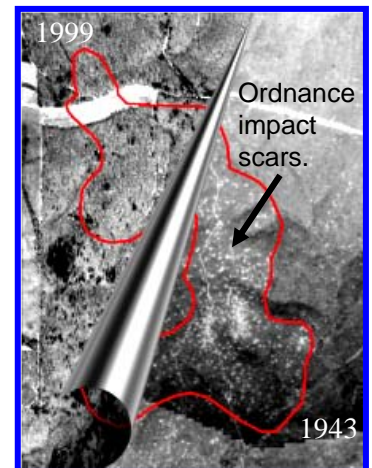


Key Capabilities

The Hydrologic and Environmental Analysis Branch uses an interdisciplinary team (geologists, geographers, foresters, biologists, physical scientists, photogrammetrists, archival researchers, and others) to provide GIS-based Historical Photographic Analyses and GIS-based Photogeologic Analyses to various Department of Defense customers. These products support the Defense Environmental Restoration Program (DERP), Installation Restoration Program (IRP), Formerly Used Defense Sites (FUDS), Base Realignment and Closure (BRAC) and Formerly Utilized Sites Remedial Action Program (FUSRAP) site investigations. The use of Geographic Information Systems or GIS is a primary component of the work. GIS allows a customer to view multi-layer "time-sequenced" data in a digital environment.

A wide array of historical aerial photography, satellite imagery, maps, base plans, text, and ground photos are collected and carefully reviewed. A summary report, rectified and orthorectified image maps, detailed vector layer analysis and photographic presentations are provided for the final product in hard copy and/or on CD or DVD media.

HEAB has done projects ranging in size from a few acres to over 600 square miles. These projects save those in charge of the cleanup both time and money (as much as \$10 saved for each 1\$ spent on analysis) by refining search areas for environmental investigation, enabling more precise targeting and planning of site investigations and geophysical surveys.



Point of Contact

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